

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION OF: Shigeto ADACHI, et al.

SERIAL NO: NEW APPLICATION

GAU:

FILED: Herewith

EXAMINER:

FOR: HIGH VOLTAGE TREATMENT EQUIPMENT AND METHOD FOR LIQUID

**INFORMATION DISCLOSURE/RELATED CASE STATEMENT UNDER 37 CFR 1.97**

ASSISTANT COMMISSIONER FOR PATENTS  
WASHINGTON, D.C. 20231

#1½

SIR:

Applicant(s) wish to disclose the following information.

**REFERENCES**

- The applicant(s) wish to make of record the references listed on the attached form PTO-1449. Copies of the listed references are attached, where required, as are either statements of relevancy or any readily available English translations of pertinent portions of any non-English language references.
- A check is attached in the amount required under 37 CFR §1.17(p).

**RELATED CASES**

- Attached is a list of applicant's pending application(s) or issued patent(s) which may be related to the present application. A copy of the patent(s), together with a copy of the claims and drawings of the pending application(s) is attached along with PTO 1449.
- A check is attached in the amount required under 37 CFR §1.17(p).

**CERTIFICATION**

- Each item of information contained in this information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this statement.
- No item of information contained in this information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application or, to the knowledge of the undersigned, having made reasonable inquiry, was known to any individual designated in 37 CFR §1.56(c) more than three months prior to the filing of this statement.

**DEPOSIT ACCOUNT**

- Please charge any additional fees for the papers being filed herewith and for which no check is enclosed herewith, or credit any overpayment to deposit account number 15-0030. A duplicate copy of this sheet is enclosed.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,  
MAIER & NEUSTADT, P.C.



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**STATEMENT OF RELEVANCY**

**Reference A0 (11-253999) on Form PTO-1449:**

An organic waste solution introduced from a route 7 is aerobically treated by aerobic bacteria in an activated sludge tank 1 (aerobic treatment tank) and the treated solution is introduced into a sedimentation apparatus 2 to be objected to solid-liquid separation. This separated sedimented sludge 10 is modified in a modifying apparatus 18 by high voltage pulse discharge treatment. The modified sludge is returned to the activated sludge tank 1 to be again aerobically treated.

**Reference AP (63-82666) on Form PTO-1449:**

An apparatus for sterilization of a treated liquid is disclosed. The apparatus comprises a linear electrode 11 and a tubular electrode 10. The tubular electrode is a pipe in which the treated liquid flows. The diameter of the linear electrode is 0.5mm. The voltage of the high voltage pulse is 20kV.

The field strength in the vicinity of the electrode is not disclosed. A movement mechanism for moving the electrode is not disclosed.

**Reference AQ (63-278549) on Form PTO-1449:**

When a high-voltage pulse is impressed on plural discharge electrodes 14 provide in a cell 11 from a pulse power source 15, an electric discharge is generated from the micropores 17 piercing the insulating material 16 surrounding the discharge electrode 14. Consequently, ionization is caused in the vicinity of the micropore, and a streamer 18 is produced. By this method, an in-liquid, electric discharge is generated with low energy and without being affected by the conductivity of a solution. In addition, contact probability with the solution is enhanced, and the chemical reaction of a liquid, sterilization, cytolysis, etc., can be efficiently carried out since the discharge can be generated over the wide region in the liquid.

An electrode in a rod shape is disclosed, but neither the diameter of the electrode or the field strength in the vicinity of the electrode is disclosed.